

**REMARKS**

In the Final Office Action<sup>1</sup>, the Examiner took the following actions:

rejected claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* (U.S. Patent No. 4,097,153) in view of *Saxe* (U.S. Patent No. 5,325,220);

rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Goldfarb* (U.S. Patent No. 5,575,936);

rejected claims 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Zeineh* (U.S. Patent No. 4,025,200);

rejected claims 10-13 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Yano et al.* (U.S. Patent No. 4,123,841, "*Yano*");

rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Yano* and further in view of *Goldfarb*; and

rejected claims 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Yano* and further in view of *Zeineh*.

Claims 1, 6, and 10 are amended and new claims 17-23 are added. Claims 1-23 are now pending.

**I. Regarding the rejection of claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Saxe***

Applicant respectfully traverses the Examiner's rejection of claims 1, 3-7, 9-13, and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Sax*. A *prima facie* case of obviousness has not been established.

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<sup>1</sup> The Final Office Action may contain a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Final Office Action.

“The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. . . . [R]ejections on obviousness cannot be sustained with mere conclusory statements.” M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007) (internal citation and inner quotation omitted). “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art.” M.P.E.P. § 2143.01(III) (emphasis in original). “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. M.P.E.P. § 2141.02(I) (emphases in original).

“[T]he framework for objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q 459 (1966). . . . The factual inquiries . . . [include] [a]scertaining the differences between the claimed invention and the prior art.” M.P.E.P. § 2141(II). “Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. § 2141(III).

A *prima facie* case of obviousness has not been established because the Final Office Action has neither properly determined the scope and content of the prior art nor the differences. Accordingly, the Final Office Action has not clearly articulated a reason why the prior art would render the claimed invention obvious to one of ordinary skill in the art.

Claim 1, as amended, recites an electrophoretic mobility measuring apparatus including, for example, “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode.” (Emphasis added).

*DeRemigis* fails to disclose or suggest at least this element of claim 1. The Examiner alleges *DeRemigis* teaches “a light incident unit for entering light into the cell through the transparent electrode” with elements 42, 46, and 48 of figure 2 (Final Office Action at 3). *DeRemigis* describes these elements as “[a] continuous wave laser 42 supplies a reference beam 44 of coherent radiation which is directed upon a beam splitter 46 to obtain an incident beam 48,” (col. 3, lines 25-27, (emphasis added)). Therefore, *DeRemigis* does not teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode.” (Emphasis added).

The Examiner correctly states “*DeRemigis* does not explicitly disclose forming the transparent electrode on the cell wall” (Final Office Action at 4). In order to cure the deficiencies of *DeRemigis*, the Examiner relies upon *Saxe*. As discussed above, claim 1 recites “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode,” (emphasis added), an element not taught or suggested by *DeRemigis*. *Saxe* also fails to disclose or suggest at least this element.

*Saxe* discloses a “light valve” provided with a pair of opposed spaced cell walls. The light valve is provided with a pair of opposed spaced cell walls, and on each of the

cell walls, electrodes are disposed. Between the cell walls, a liquid including small particles is filled. The light valve is opaque when no electronic field is applied and becomes transparent when electronic field is applied and the particles being aligned (col. 1, lines 15-44). In contrast, claim 1 recites that "a light incident unit for entering light into a region of the cell wherein an electroosmotic flow substantially parallel to a face of the transparent electrode generated, through the transparent electrode."

Therefore, Saxe does not teach or suggest "a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode." (Emphasis added).

Further, Applicant submits the invention of claim 1 relates to an electrophoretic mobility measuring apparatus where an electroosmotic flow A of the liquid in the cell is generated by applying a voltage to the cell. (See, for example, Specification<sup>2</sup>, figure 1, page 6, line 9 - page 7, line 3). The electroosmotic flow A is generated substantially parallel to the face of the transparent electrode 63 in the region B near the face of the transparent electrode 63 (A1). The present invention measures an electrophoretic mobility of the particles by impinging light obliquely to the region B. The light valve as disclosed by Saxe, however, merely turns the transmitting light on and off as discussed above, and cannot measure an electrophoretic mobility of the particles in the specimen. Saxe discloses "a light valve may be described as a cell formed of two walls that are

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<sup>2</sup> In making the various references to the specification and drawings set forth herein, it is to be understood that Applicant is in no way intending to limit the scope of the claims to the exemplary embodiments shown in the drawings and described in the specification. Rather, Applicant expressly affirms that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation and applicable case law.

spaced apart by a small distance” (col. 1, lines 16-18), the two walls are close to each other in the invention of Saxe, and therefore, an electroosmotic Flow A is not generated in the liquid between the closed two walls in Saxe’s light valve.

In view of the above deficiencies of the references, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the invention of claim 1. Thus, the Final Office Action has failed to clearly articulate a reason why claim 1 would have been obvious to one of ordinary skill in the art in view of the prior art. Accordingly, a *prima facie* case of obviousness has not been established with respect to claim 1 and the rejection under 35 U.S.C. § 103(a) must be withdrawn. Claims 2-5 are also allowable at least due to their dependence from claim 1.

Independent claim 6, as amended, recites an electrophoretic mobility measuring apparatus including, for example, a “transparent electrode . . . formed on a transparent substrate that has at least two lateral sides besides a face on which the transparent electrode is formed, and the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through an other lateral side of the transparent substrate” (Emphasis added).

*DeRemigis* fails to disclose or suggest at least this element of claim 6. The Examiner states this claim element is met by *DeRemigis* in col. 3, lines 46-50, which describes “. . . both the electrode 26 and the adjacent sample cell wall be constructed of suitable transparent materials to permit unobstructed transmission of the beams 48 and 50.” The Examiner further states figure 2 of *DeRemigis* illustrates “the light incident

unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent substrate,” (Final Office Action at 5). However, this is incorrect. *DeRemigis* teaches a first electrode formed in a top portion of cell and a second electrode is formed opposite of the first electrode within the cell. Therefore, *DeRemigis* fails to teach or suggest “the transparent electrode is formed on a transparent substrate that has at least two lateral sides besides a face on which the transparent electrode is formed, and the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through an other lateral side of the transparent substrate,” (emphasis added) as recited in claim 6.

Saxe fails to cure the deficiencies of *DeRemigis*. As discussed above, Saxe discloses a “light valve” provided with a pair of opposite spaced cell walls. In contrast, claim 6 recites that “the transparent electrode is formed on a transparent substrate that has at least two lateral sides besides a face on which the transparent electrode is formed, and the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through an other lateral side of the transparent substrate,” (Emphasis added). Therefore, Saxe also fails to teach or suggest claim 6.

Further, Applicant submits the Examiner pointed out in the Final Office Action that “*DeRemigis* disclosed . . . the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent

substrate (see Fig. 2)," (Final Office Action at 5). However, *DeRemigis* is silent to a structure such as recited in claim 6 having "a transparent substrate that has at least two lateral sides beside a face on which the transparent electrode is formed." In the present invention, the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through an other lateral side of the transparent substrate.

In view of the above deficiencies of the references, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the invention of claim 6. Thus, the Final Office Action has failed to clearly articulate a reason why claim 1 would have been obvious to one of ordinary skill in the art in view of the prior art. Accordingly, a *prima facie* case of obviousness has not been established with respect to claim 6 and the rejection under 35 U.S.C. § 103(a) must be withdrawn. New claims 17-23 are also allowable at least due to their dependence from claim 6.

**II. Regarding the rejection of claim 7 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Goldfarb***

Applicant respectfully traverses the rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Goldfarb*. No *prima facie* case of obviousness is established.

Claim 7 depends from claim 1 and thus incorporates each and every element recited therein. *DeRemigis* and *Saxe* fail to teach or suggest "a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially

parallel to a face of the transparent electrode is generated through the transparent electrode,” as recited in claim 1 for at least the reasons discussed above. *Goldfarb* fails to cure the deficiencies of *DeRemigis* and *Saxe*. *Goldfarb* teaches a device for focusing a focusing lens in a laser along three axes (col. 4, lines 16-19). *Goldfarb*, however, does not teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode,” as recited in claim 1.

As explained above, the elements of the claim are neither taught nor suggested by the cited references. Consequently, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 7 and the Examiner should withdraw the rejection of claim 7 under 35 U.S.C. § 103(a).

**III. Regarding the rejections of claims 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Zeineh***

Applicant respectfully traverses the rejection of claims 8 and 9 as being unpatentable over *DeRemigis* in view of *Saxe* and in further view of *Zeineh*. No *prima facie* case of obviousness is established.

Claims 8 and 9 depend from claim 1 and thus incorporate each and every element recited therein. As established above, neither *DeRemigis* nor *Saxe* teach or



suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode,” as recited in claim 1. *Zeineh* fails to cure the deficiencies of *DeRemigis* and *Saxe*. *Zeineh* teaches a laser utilizing laser light for densitometry and spectrophotometry (col. 3, lines 46-48). *Zeineh*, however, does not teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode,” as recited in claim 1, and required by claims 8 and 9.

As explained above, the elements of the claims are neither taught nor suggested by the cited references. Consequently, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claims 8 and 9 and the Examiner should withdraw the rejection of claim 7 under 35 U.S.C. § 103(a).

**IV. Regarding the rejections of claims 10-13 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Yano***

Applicant respectfully traverses the rejection of claim 10 as being unpatentable over *DeRemigis* in view of *Yano*. No *prima facie* case of obviousness is established.

Claim 10, as amended, recites an electrophoretic mobility measuring apparatus including, for example, “a light incident unit for entering light into a region of the cell,

wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent incident window of the opaque electrode.” (Emphasis added).

*DeRemigis* fails to disclose or suggest at least this element of claim 1. The Examiner alleges *DeRemigis* teaches “a light incident unit for entering light into the cell through the transparent electrode” with elements 42, 46, and 48 of figure 2. *DeRemigis* describes these elements as “[a] continuous wave laser 42 supplies a reference beam 44 of coherent radiation which is directed upon a beam splitter 46 to obtain an incident beam 48,” (col. 3, lines 25-27, (emphasis added)). Therefore, *DeRemigis* does not teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent incident window of the opaque electrode.” (Emphasis added).

The Examiner correctly states “*DeRemigis* does not explicitly disclose forming the transparent electrode on the cell wall,” (Final Office Action at 8). In order to cure the deficiencies of *DeRemigis*, the Examiner relies upon *Yano*. However, *Yano* fails to cure the deficiencies of *DeRemigis*. *Yano* merely teaches a method for the manufacture of electrochromic display devices (col. 1, lines 5-6). Therefore, *Yano* fails to teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent incident window of the opaque electrode,” as recited in claim 10.

In view of the deficiencies of the references, above, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the invention of claim 10. Thus, the Final Office Action has failed to clearly articulate a reason why claim 10 would have been obvious to one of ordinary skill in the art in view of the prior art. Accordingly, a *prima facie* case of obviousness has not been established with respect to claim 10 and the rejection under 35 U.S.C. § 103(a) must be withdrawn. Claims 11-13 are also allowable at least due to their dependence from claim 10.

**V. Regarding the rejection of claim 14 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Yano* and in further view of *Goldfarb***

Applicant respectfully traverses the rejection of claim 14 as being unpatentable over *DeRemigis* in view of *Yano* and in further view of *Goldfarb*. No *prima facie* case of obviousness is established.

Claim 14 depends from claim 10 and thus incorporates each and every element recited therein. *DeRemigis* and *Yano* fail to teach or suggest “a light incident unit for entering light into a region of the cell, wherein an electroosmotic flow substantially parallel to a face of the transparent electrode is generated through the transparent electrode,” as recited in claim 10 for at least the reasons discussed above. *Goldfarb* fails to cure the deficiencies of *DeRemigis* and *Yano* for similar reasons as discussed above in connection with claim 7.

As explained above, the elements of the claim are neither taught nor suggested by the cited references. Consequently, the Final Office Action has neither properly

determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claim 14 and the Examiner should withdraw the rejection of claim 14 under 35 U.S.C. § 103(a).

**VI. Regarding the rejections of claims 15 and 16 under 35 U.S.C. §103(a) as being unpatentable over *DeRemigis* in view of *Yano* and in further view of *Zeineh***

Applicant respectfully traverses the rejection of claims 15 and 16 as being unpatentable over *DeRemigis* in view of *Yano* and in further view of *Zeineh* because no *prima facie* case of obviousness is established. Claims 15 and 16 depend from claim 10 and, thus, incorporate each and every element recited therein. *DeRemigis* and *Yano* fail to teach or suggest each and every element recited in claim 10 for the reasons discussed above. *Zeineh* fails to cure the deficiencies of *DeRemigis* and *Yano* for reasons already discussed above with respect to claims 8 and 9. Accordingly, the combination of the references fails to teach or suggest each and every element recited in claim 10 and required by claims 15 and 16.

As explained above, the elements of the claims are neither taught nor suggested by the cited references. Consequently, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of

ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for claims 15 and 16 and the Examiner should withdraw the rejection of claims 15 and 16 under 35 U.S.C. § 103(a).


In view of the foregoing remarks, Applicant requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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